

**Abstract**

In the invention, a catalyst system for the polymerization of  $\alpha$ -olefins has been prepared by a process including a catalyst activation comprising the contacting of a solid transition metal compound with an organoaluminium compound, and a catalyst prepolymerization comprising the polymerization of a premonomer in the presence of the activated catalyst. High activity, low fines polymerization is accomplished if the catalyst activation comprises a first step of contacting the solid transition metal compound with a first organoaluminium compound in the presence of an oil to give a first reaction mixture, and a second step of contacting the first reaction mixture with a second organoaluminium compound to give a second reaction mixture, the second organoaluminium compound being the same as or different from the first organoaluminium compound.

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